What Is Claimed Is:

1. A fuel injection quantity control device for controlling an actual revolution speed of an engine to a target revolution speed, comprising:

difference computation means for subtracting the actual revolution speed from the target revolution speed and finding a difference therebetween;

proportional term computation means for multiplying the difference by a prescribed proportionality constant and finding a proportional term output value;

integral term computation means for finding an integral term output value which is obtained by integrating a product of the difference and a prescribed integration constant;

differential term computation means for finding a differential term output value which is obtained by multiplying a value obtained by differentiating the difference by a prescribed differentiation constant; and

injection quantity computation means for adding up the proportional term output value and integral term output value and determining the injection quantity, wherein the fuel injection quantity control device further comprises:

correction means for limiting a lower limit of the integral term output value with the differential term output value when the difference is negative, thereby suppressing the excess reduction of the injection quantity, and limiting the upper limit of the integral term output value with the differential term output value when the difference is positive, thereby suppressing the excess increase of the injection quantity.

2. The fuel injection quantity control device according to claim 1, wherein the correction means limits the lower limit or upper limit of the integral term output value with the differential term output value when the engine and a drive system are disconnected and the actual revolution speed approaches the target revolution speed within the prescribed value.

3. The fuel injection quantity control device according to claim 1, wherein the correction means discontinues limiting the lower limit or upper limit of the integral term output value with the differential term output value and resets the differential term output value to zero when the difference changes from positive to negative or from negative to positive.

4. The fuel injection quantity control device according to claim 2, wherein the correction means discontinues limiting the lower limit or upper limit of the integral term output value with the differential term output value and resets the differential term output value to zero when the difference changes from positive to negative or from negative to positive.

5. The fuel injection quantity control device according to claim 1, wherein the correction means discontinues limiting the lower limit of the integral term output value with the differential term output value and resets the differential term output value to zero when the integral term output value becomes larger than the differential term output value.

6. The fuel injection quantity control device according to claim 2, wherein the correction means discontinues limiting the lower limit of the integral term output value with the differential term output value and resets the differential term output value to zero when the integral term output value becomes larger than the differential term output value.

7. The fuel injection quantity control device according to claim 1, wherein the correction means discontinues limiting the upper limit of the integral term output value with the differential term output value and resets the differential term output value to zero when the integral term output value becomes smaller than the differential term output value.

8. The fuel injection quantity control device according to claim 2, wherein the correction means discontinues limiting the upper limit of the integral term output value with the differential term output value and resets the differential term

output value to zero when the integral term output value becomes smaller than the differential term output value.

9. The fuel injection quantity control device according to claim 1, wherein the correction means limits the lower limit of the integral term output value with a lower limit value determined by comparing the differential term output value with zero and selecting the larger of them.

10. The fuel injection quantity control device according to claim 2, wherein the correction means limits the lower limit of the integral term output value with a lower limit value determined by comparing the differential term output value with zero and selecting the larger of them.

11. The fuel injection quantity control device according to claim 1, wherein the correction means limits the upper limit of the integral term output value with an upper limit value determined by comparing the differential term output value with zero and selecting the smaller value of them.

12. The fuel injection quantity control device according to claim 2, wherein the correction means limits the upper limit of the integral term output value with an upper limit value determined by comparing the differential term output value with zero and selecting the smaller value of them.

13. The fuel injection quantity control device according to claim 1, wherein the proportional term computation means determines the proportionality constant based on the difference and water temperature.

14. The fuel injection quantity control device according to claim 2, wherein the proportional term computation means determines the proportionality constant based on the difference and water temperature.

15. The fuel injection quantity control device according to claim 1, wherein the integral term computation means successively adds up the present integral term output value obtained by multiplying the difference by the prescribed

integration constant and the next integral term output value found in a similar manner.

16. The fuel injection quantity control device according to claim 2, wherein the integral term computation means successively adds up the present integral term output value obtained by multiplying the difference by the prescribed integration constant and the next integral term output value found in a similar manner.

17. The fuel injection quantity control device according to claim 1, wherein the integral term computation means determines the integration constant based on the difference and water temperature.

18. The fuel injection quantity control device according to claim 2, wherein the integral term computation means determines the integration constant based on the difference and water temperature.

19. The fuel injection quantity control device according to claim 1, wherein the differential term computation means determines the differentiation constant based on the difference.

20. The fuel injection quantity control device according to claim 2, wherein the differential term computation means determines the differentiation constant based on the difference.